What is claimed is:

1. An IC card comprising:

a semiconductor device having a semiconductor chip at least partially sealed with a first sealing portion made of a thermosetting resin material and having, over a first surface, an external connection terminal electrically connected to the semiconductor chip;

a case which is made of a thermoplastic resin material and to which the semiconductor device is to be loaded; and

a second sealing portion which is made of a thermoplastic resin material and seals the semiconductor device so as to expose the external connection terminal, thereby integrating the semiconductor device with the case.

2. An IC card according to Claim 1,

wherein the semiconductor device comprises:

a wiring substrate having the external connection terminal and an interconnect:

the semiconductor chip disposed over the wiring substrate and electrically connected to the external connection terminal via the interconnect: and

the first sealing portion made of a thermosetting resin material and formed over the wiring substrate so as to seal the semiconductor chip at least partially.

3. An IC card according to Claim 2, wherein the

first sealing portion is formed to cover the semiconductor chip.

4. An IC card according to Claim 2, wherein the semiconductor device has a connecting member for electrically connecting the interconnect of the wiring substrate with the semiconductor chip, and the first sealing portion covers the connecting member.

5. An IC card according to Claim 2, wherein the semiconductor chip is disposed over a surface of the wiring substrate on a side opposite to a surface over which the external connection terminal is formed.

6. An IC card according to Claim 1, wherein the second sealing portion is formed to cover a region, other than the external connection terminal, of the first surface of the semiconductor device.

7. An IC card according to Claim 1, wherein the case and the second sealing portion are made of the same material.

8. An IC card according to Claim 1, wherein the second sealing portion is welded with the interface portion of the case.

9. An IC card according to Claim 1, wherein a projecting portion is formed over the first surface of the semiconductor device, the external connection terminal is formed over the projecting portion of the first surface,

and the second sealing portion is formed to cover a region, other than the projecting portion, of the first surface of the semiconductor device.

10. An IC card according to Claim 1, wherein the first sealing portion is made of an epoxy resin containing a silica filler.

11. An IC card according to Claim 1,

wherein the semiconductor device comprises:

a die pad portion;

the semiconductor chip disposed over the die pad portion;

a lead portion electrically connected to the semiconductor chip; and

the first sealing portion covering the die pad portion, the semiconductor chip and the lead portion and exposing, as the external connection terminal, a part of the lead portion from the outer surface of the first sealing portion.

12. A manufacturing method of an IC card, comprising the steps of:

(a) preparing a semiconductor device having a semiconductor chip sealed at least partially with a first sealing portion made of a thermosetting resin material and having, over a first surface, an external connection terminal electrically connected to the semiconductor chip;

(b) preparing a case which is made of a thermoplastic resin material and to which the semiconductor device can be loaded;

(c) loading the semiconductor device in the case; and

(d) sealing the semiconductor device with a second sealing portion made of a thermoplastic resin material so as to expose the external connection terminal, thereby forming the semiconductor device integral with the case.

13. A manufacturing method of an IC card according to Claim 12, wherein the step (a) comprises the steps of:

(a1) preparing a wiring substrate having the external connection terminal and interconnect;

(a2) disposing the semiconductor chip over the wiring substrate and electrically connecting the semiconductor chip to the external connection terminal via the interconnect; and

(a3) forming the first sealing portion made of a thermosetting resin material so as to seal at least a portion of the semiconductor chip over the wiring substrate.

14. A manufacturing method of an IC card according to Claim 13, wherein in the step (a3), the first sealing portion is formed to cover the semiconductor chip.

15. A manufacturing method of an IC card according to Claim 13,

wherein in the step (a2), the interconnect is

electrically connected to the semiconductor chip via a connecting member, and

wherein in the step (a3), the connecting member is covered with the first sealing portion.

16. A manufacturing method of an IC card according to Claim 13, wherein in the second step (a2), the semiconductor chip is disposed over a surface of the wiring substrate on the side opposite to the surface over which the external connection terminal is formed.

17. A manufacturing method of an IC card according to Claim 12, wherein in the step (d), the second sealing portion is formed to cover a region, other than the external connection terminal, of the first surface of the semiconductor device.

18. A manufacturing method of an IC card according to Claim 12,

wherein a projecting portion is formed over the first surface of the semiconductor device, and the external connection terminal is formed over the projecting portion, and

wherein in the step (d), the second sealing portion is formed to cover a region, other than the projecting portion, of the first surface of the semiconductor device.

19. A manufacturing method of an IC card according to Claim 12,

wherein in the step (b), the case is formed by injection molding using a first lower mold and a first upper mold,

wherein in the step (c), the semiconductor device is loaded over the case after the step (b), and

wherein in the step (d), the second sealing portion is formed by injection molding using the first lower mold and a second upper mold after the step (c).

20. A manufacturing method of an IC card according to Claim 12, wherein a thermoplastic resin used for the formation of the case in the step (b) and a thermoplastic resin used for the formation of the second sealing portion in the step (d) are the same material.

21. A manufacturing method of an IC card according to Claim 12, further comprising, after the step (d), a step of:

attaching a mechanically operated part.

22. A manufacturing method of an IC card according to Claim 12,

wherein the step (d) further comprises a step of disposing the case having the semiconductor device loaded thereto in a cavity of a mold, introducing a thermoplastic resin material in the cavity, and forming the second sealing portion, and

wherein the thermoplastic resin material is heated in

advance to a temperature higher than the softening temperature of the case upon introduction of the thermoplastic resin material in the cavity.

23. A manufacturing method of an IC card according to Claim 12, wherein the step (a) comprises the steps of:

preparing a lead frame having a die pad portion and a lead portion;

loading the semiconductor chip to the die pad portion and wire bonding the semiconductor chip to the lead portion; and

forming the first sealing portion made of a thermosetting resin material so as to cover the semiconductor chip, the die pad portion and the lead portion and to expose, from the outer surface of the first sealing portion, a portion of the outer surface of the lead portion as the external connection terminal.

24. A manufacturing method of an IC card according to Claim 12,

wherein in the step (a), a plurality of the semiconductor devices are prepared,

wherein in the step (b), a frame having an array of a plurality of the cases is prepared,

wherein in the step (c), the semiconductor device is loaded in each of the plurality of the cases constituting the frame, and

wherein in the step (d), the second sealing portions are formed in block for the plurality of the cases constituting the frame, respectively.